

3.6 AIR QUALITY

This section presents the current air quality conditions in the vicinity of McGregor Range, and compares it to the relative federal and state air quality standards.

Air quality in a given location can be described by the concentration of individual pollutants in the atmosphere, and is generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Meteorological conditions have a significant impact on the pollutant concentrations, because they control the dispersion or mixing of pollutants in the atmosphere through the influences of wind speed, wind direction, atmospheric stability, and other meteorological variables.

3.6.1 Applicable Regulations and Standards

3.6.1.1 Federal Air Quality Standards

The significance of a pollutant in a region or geographical area is determined by comparing the concentration in the atmosphere to federal and state ambient air quality standards (AAQS) for the pollutant. Under the authority of the CAA, the U.S. Environmental Protection Agency (EPA) has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety. These federal standards, known as the National Ambient Air Quality Standards (NAAQS), were developed for six “criteria” pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter less than 10 micrometers in diameter (PM_{10}) and particulate matter less than 2.5 micrometers in diameter ($\text{PM}_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). The standards are defined in terms of concentration (e.g., ppm) determined over various periods of time (averaging periods). Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects, while long-term standards (annual periods) were established for pollutants with chronic health effects. These standards are shown in Table 3.6-1.

Two of these standards have been newly promulgated by EPA in 1997: a new 8-hour ozone standard (which will eventually replace the historic 1-hour standard); and a new standard for $\text{PM}_{2.5}$, which was not regulated until this year. EPA has stated that both of these new standards will be implemented over an extended period of time. In the case of the O_3 standard, the 1-hour standard will continue to apply to areas not attaining it for an “interim period” (expected to be several years). For the new $\text{PM}_{2.5}$ standard, there will be a 3-year period during which air monitoring data will be acquired to determine present ambient levels of $\text{PM}_{2.5}$, since no previous monitoring has been conducted for this pollutant. Designation of areas as attainment or nonattainment of the $\text{PM}_{2.5}$ standard is not scheduled until the 2002 to 2005 timeframe.

In a semi-arid to arid region such as McGregor Range, a new particulate $\text{PM}_{2.5}$ standard could be a cause of concern, particularly when there is essentially no ambient monitoring data available at present to determine current compliance status. However, fine particles, measured by $\text{PM}_{2.5}$, are generally produced by combustion processes (e.g., boilers, internal combustion engines), while coarse particles, measured by PM_{10} , result from windblown dust on deserts and fields, or road dust kicked up from motor vehicles. A relatively small number of combustion sources are located at McGregor Range.

3.6.1.2 State Air Quality Standards

Under the CAA, state and local agencies may establish air quality standards and regulations of their own, provided these are at least as stringent as the federal requirements. Activities at McGregor Range can have

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Table 3.6-1. Ambient Air Quality Standards

<i>Air Pollutant</i>	<i>Averaging Time</i>	<i>Federal NAAQS</i>		<i>New Mexico AAQS</i>	
		<i>Primary</i>	<i>Secondary</i>	<i>Primary</i>	<i>Secondary</i>
CO	8-hour	9 ppm	—	8.7 ppm	—
	1-hour	35 ppm	—	13.1 ppm	—
NO ₂	AAM	0.053 ppm	0.053 ppm	0.05 ppm	0.053 ppm
	24-hour	—	—	0.10 ppm	—
SO ₂	AAM	0.03 ppm	—	0.02 ppm	—
	24-hour	0.14 ppm	—	0.10 ppm	—
	3-hour	—	0.5 ppm	—	0.5 ppm
PM ₁₀	AAM	50 µg/m ³	50 µg/m ³	—	50 µg/m ³
	24-hr	150 µg/m ³	150 µg/m ³	—	150 µg/m ³
PM _{2.5} ^(a)	AAM	15 µg/m ³	15 µg/m ³	—	—
	24-hour	65 µg/m ³	65 µg/m ³	—	—
Total Suspended Particulates (TSP)	AGM	—	—	60 µg/m ³	—
	30-day	—	—	90 µg/m ³	—
	7-day	—	—	110 µg/m ³	—
	24-hr	—	—	150 µg/m ³	—
O ₃ ^(b)	1-hour	0.12 ppm	0.12 ppm	0.12 ppm	0.12 ppm
	8-hour	0.08 ppm	—	—	—
Pb and Pb Compounds	Calendar Quarter	1.5 µg/m ³	1.5 µg/m ³	1.5 µg/m ³	1.5 µg/m ³

^a The 8-hour O₃ standard was promulgated in 1997, and will eventually replace the 1-hour standard. However, the 1-hour O₃ standard will continue to apply to areas not attaining it for an interim period.

^b The PM standard (particulate matter with a 2.5 µm diameter) was promulgated in 1997, and will be implemented over an extended timeframe. Areas will not be designated as in attainment or nonattainment of the PM standard until the 2002-2005 timeframe.

AAM = Annual Arithmetic Mean, AGM = Annual Geometric Mean, ppm = parts per million, µg/m³ = micrograms per cubic meter.

Sources: New Mexico Air Quality Bureau, 1997.

an impact on air quality in New Mexico. The State of New Mexico revised its own AAQS in November 1995. According to the preamble of the new regulation, the New Mexico AAQS are not intended to provide a sharp dividing line between air of satisfactory quality and air of unsatisfactory quality. They are, however, numbers that represent objectives to preserve the State's air resources. Table 3.6-1 shows the national and state AAQS that apply with respect to McGregor Range (New Mexico Air Quality Bureau, 1997).

Attainment Areas. EPA has classified all areas of the U.S. as meeting the NAAQS (in attainment) or not meeting the NAAQS (in nonattainment) for each individual criteria pollutant. The CAA Amendments of 1990 established a framework to achieve attainment and maintenance of the health-protective NAAQS. Title I sets provisions for the attainment and maintenance of the NAAQS.

State Implementation Plans. Individual states are required to establish a State Implementation Plan (SIP), which is approved by EPA. A SIP is a document designed to provide a plan for maintaining existing air quality in attainment areas, and programmatically eliminating or reducing the severity and number of NAAQS violations in nonattainment areas, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS.

The principal method of maintaining or improving ambient air quality is by controlling emissions from sources: the SIP establishes regulations to control stationary emission sources; and EPA establishes regulations to control mobile sources, which are installed by vehicle manufacturers. In attainment areas, Prevention of Significant Deterioration (PSD) regulations apply; in nonattainment areas, New Source Review regulations apply.

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A complex web of control regulations can apply to large stationary emission sources, including Best Available Control Technology (BACT), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), and Maximum Achievable Control Technology (MACT). Based on the type of source, the emission levels of criteria pollutants, and the location, one or more of these control requirements may be applicable.

The PSD regulations provide special protection from air quality impacts for certain areas, primarily National Parks and Wilderness Areas, that have been designated as “Class I” areas. Mandatory PSD Class I areas, established under the CAA Amendments of 1977 for the states of New Mexico and Texas, are listed under 40 CFR 81.421 and 81.429, respectively. These are areas where visibility has been determined to be an important issue by the EPA Administrator, in consultation with the Secretary of the Interior. The nearest PSD Class I area to McGregor Range is Guadalupe Mountains National Park, which is approximately 45 miles to the southeast. Other PSD Class I areas in the region include Big Bend National Park, Carlsbad Caverns National Park, the White Mountain Wilderness Area, and the Bosque del Apache Wilderness Area.

Conformity Rule. Under the General Conformity Rule of the CAA, Section 176(c), activities must not: (a) cause or contribute to any new violation, (b) increase the frequency or severity of any existing violation, or (c) delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP’s purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of the NAAQS.

3.6.2 Current Attainment Status

McGregor Range covers portions of south-central New Mexico in Otero County. A review of the attainment status for New Mexico indicated that Otero County is designated as attainment for all criteria pollutants. As discussed above, this attainment status is based on the historic 1-hour O₃ standard rather than the new 8-hour standard, although it is unlikely that the attainment designation of this area will change when the new standard is fully implemented. In addition, there will be no attainment/nonattainment designations for PM_{2.5} until the 2002 to 2005 timeframe.

The area or ROI affected by a project’s emission sources will vary depending upon the pollutant type. For inert pollutants (all pollutants other than O₃ and its precursors, such as NO₂), the ROI is generally limited to an area extending a few miles downwind from the source. O₃ is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. O₃ precursors are mainly volatile organic compounds (VOCs) in the form of hydrocarbons, and nitrogen oxides (NO_x). The ROI for O₃ may extend much farther downwind than for inert pollutants. As a result, nonattainment areas around large metropolitan areas will often be larger for O₃ than for other pollutants.

The New Mexico Air Quality Bureau does not monitor ambient air pollutant concentrations on the Fort Bliss Training Complex. Routine air quality monitoring occurs at several stations located west and north of the Training Complex. Monitoring data from these areas for 1993 through 1995 are presented in Table 3.6-2, and indicate generally good air quality (New Mexico Air Quality Bureau, 1994, 1997). PM₁₀ is the only criteria pollutant that exceeded the federal standard, mainly during extremely high wind conditions.

3.6.3 Existing Air Quality Emissions

McGregor Range is not considered to be a major air emissions source by the Air Quality Bureau of the State of New Mexico because it is primarily comprised of multiple minor individual emission sources that are included on the Air Quality Bureau’s List of Insignificant Activities. Consequently, McGregor Range is not required to have any air permits for its operations.

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Table 3.6-2. Air Quality Monitoring Data for South-central New Mexico

Pollutant/Monitoring Station	Averaging Time/ Measurement	Maximum Concentration by Year		
		1993	1994	1995
CO (ppm)				
Las Cruces Armory	8-Hour	3.8	3.5	3.4
Las Cruces University		8.9	5.1	4.5
Las Cruces Armory	1-Hour	8.4	6.6	6.2
Las Cruces University		12.2	8.3	6.9
O ₃ (ppm)				
La Union	1-Hour	0.125	0.100	0.111
Sunland Park		0.140	0.137	0.137
Las Cruces University		0.054	0.079	0.080
PM ₁₀ (µg/m ³)				
Las Cruces, Env. Dept.	AAM	21	22	24
Las Cruces, Roadrunner Blvd.		—	—	21
Las Cruces, Holman Rd.		—	—	21
Anthony		37	41	40
Sunland Park		32	35	41
Sunland Park (continuous)		—	53	47
La Luz		—	—	14
Las Cruces, Env. Dept.	24-Hour	53	53	14
Las Cruces, Roadrunner Blvd.		—	—	71
Las Cruces, Holman Rd.		—	—	79
Anthony		99	154	40
Sunland Park		103	106	142
Sunland Park (continuous)		—	491	165
La Luz		—	—	309
				23
NO ₂ (ppm)				
Las Cruces, Holman Rd.	AAM			0.005
SO ₂ (ppm)				
La Union	AAM	0.002	0.001	0.002
Sunland Park		0.010	0.007	0.007
La Union	24-Hour	0.020	0.006	0.006
Sunland Park		0.100	0.057	0.040
La Union	3-Hour	0.080	0.035	0.025
Sunland Park		0.380	0.181	0.190
Pb (µg/m ³)				
Sunland Park Racetrack	QAM	0.13	0.040	0.045
Sunland Park		0.11	0.041	0.046

Notes: ppm = part per million by volume, µg/m³ = micrograms per cubic meter, AAM = Annual Arithmetic Mean, QAM = Quarterly Arithmetic Mean.

Source: New Mexico Air Quality Bureau, 1997.

An updated emissions inventory has not been conducted for McGregor Range because of its status as a minor source of air emissions. However, representative air emission sources at McGregor Range will include portable and emergency gasoline/diesel/JP-8 generators, solvent degreasers, fuel storage tanks, and fuel dispensing facilities.